

AR79

annual  
report  
1973

Sub

# Canada Tungsten Mining Corporation Ltd.





**CANADA**  
**TUNGSTEN**  
**MINING CORPORATION LIMITED**

*Executive Office*                      Suite 1014 - 111 Richmond St. W., Toronto, Ont.

*Branch Office*                      80 Niobe Street, North Vancouver, B.C.

*Officers*                      FRED E. HALL, *President*  
J. B. REDPATH, *Vice-President*  
R. G. HORNCastle, *Secretary-Treasurer*

*Directors*                      SENATOR JOHN B. AIRD, Toronto  
J. M. RICHARD CORBETT, Toronto  
FRED E. HALL, Toronto  
DR. E. B. GILLANDERS, Vancouver  
PIERRE GOUSSELAND, New York  
J. B. REDPATH, Toronto  
H. A. SAWYER, JR., New York

*Transfer Agents  
and Registrars*                      CANADA PERMANENT TRUST COMPANY  
1901 Yonge Street, Toronto, Ont.

*Bankers*                      CANADIAN IMPERIAL BANK OF COMMERCE  
Toronto and Vancouver

*Auditors*                      DELOITTE, HASKINS & SELLS  
Royal Trust Tower, Toronto, Ont.

THE ANNUAL MEETING of the Shareholders of Canada Tungsten Mining Corporation Limited will be held on Friday, April 19, at 11:00 o'clock in the forenoon in the Kent Room, Four Seasons Sheraton Hotel, Toronto, Ontario.

*Directors' Report to the Shareholders:*

Your Directors present herewith the Annual Report of your Company together with the Manager's Report and audited Financial Statements for the year ended December 31, 1973.

During the year under review the Company earned a net profit of \$709,697 or 14.2¢ per share before the write off of low grade ore inventory compared to a net loss of \$121,808 from its 1972 operations.

Due to an inventory carry-over from 1972, sales of units of product were higher than production. In addition, most of the inventory purchased in Europe in early 1972 in association with a division of American Metal Climax, Inc. was disposed of. The copper inventory at December 31, 1972 along with the production for 1973 was also sold during the year.

Production in 1973 amounted to 161,430 short ton units of  $WO_3$  slightly above that produced in 1972. Overall recovery for the year was 80.20% against 78.93% in the previous year.

Mining during the year was confined to the high grade skarn-type ore in the open pit and

103,670 tons grading 1.60%  $WO_3$  were stock-piled, this being sufficient to supply the concentrator through the first quarter in 1974. The remaining skarn-type ore in the walls of the pit amounts to 177,000 tons grading 1.60%  $WO_3$  and there remains a chert reserve underlying the pit amounting to 615,000 tons grading 0.81%  $WO_3$ . A further 64,000 tons of this mined chert ore is in stockpile. In addition to the above, there is a substantial amount of unmined lower grade chert material in the pit area.

With the verification of the underground orebody by drilling from the adit it was decided to take only higher grade skarn-type ore from the pit and prepare the underground orebody to supply mill requirements starting with the second quarter of 1974.

The main adit was stopped early in the year and preparation for mining has continued with the driving of a ventilation decline and access inclines in the hanging wall and through the lower limb of the orebody.

Underground drilling to date has indicated a total of 4,242,000 tons averaging 1.68%  $WO_3$  and 0.22% Cu before dilution.



**CANADA**  
TUNGSTEN  
**MINING CORPORATION LIMITED**

The orebody is still open to the west but it will not be explored until present plans for production have been completed.

The balance of \$600,000 in the preproduction and deferred exploration account carried forward from the pit orebody and being added to the development and exploration costs of the E Zone, will be amortized over the life of that orebody. The \$227,187 inventory of stock-piled low grade refractory ore mined in 1972 which will not be used at the present time has been written off as an extraordinary item.

The Directors have approved a budget of capital expenditures totalling \$5,800,000 since the beginning of the development program in late 1972. This amount will be used for developing the underground E Zone, modifications to power, mill and town site facilities including a sewage disposal plant and construction of an additional 30 housing units to be completed in 1975.

Due to political climate and the uncertain tax and royalty regulations, no exploration work was carried out in British Columbia during 1973. The Company's efforts were concentrated in the Yukon and Northwest

Territories. Two properties in the Yukon and Northwest Territories have been optioned and will be examined in 1974.

Mr. E. H. Hoddinott, General Manager, resigned in the latter part of the year, and has taken up other responsibilities. Mr. J. K. Kervin has assumed the position as Manager of the operations.

The Directors acknowledge the loyal and dedicated services of Mr. Kervin and the staff during the past year.

On behalf of the Board,

F. E. HALL,  
President.

Toronto, Ontario,  
March 18, 1974.



## TUNGSTEN FACTS AND FIGURES

### Introduction

Tungsten is a heavy metallic element (atomic weight 183.92) having unique properties. It has the highest melting point ( $3,410^{\circ}\text{C.}$ ), the highest modulus elasticity ( $50 \times 10^6$  psi), the lowest vapor pressure and the lowest coefficient of thermal expansion ( $4.3 \times 10^{-6}/^{\circ}\text{C.}$ ) of any of the metallic elements.

The two most important mineral sources of tungsten are wolframite, an iron manganese tungstate, and scheelite, a calcium tungstate.

### Uses

The main uses of tungsten are in tungsten carbide (about 50%), high-speed tool steel (20%), high temperature alloys (11%), tungsten metal and alloys (15%), and numerous chemical applications (5%).

Tungsten carbide, one of the hardest materials known, is usually made by the chemical combination of tungsten metal powder and finely divided lamp black. Cobalt is added as a binder or cement, and the material is compacted to the required shapes before sintering. Tungsten carbide is used extensively for lathe tools, milling cutters, drills, reamers, and teeth for circular saws. It is also used for dies for drawing wire, rod and tubing and for punches and dies for blanking, stamping and forming. Tungsten carbide tips are used on cutters of coal mining machines, rock drills, masonry drills and oil well drill bits, and carbide parts are incorporated into many types of machines to resist abrasion and wear. Other applications are in motor car tire studs and armor-piercing projectiles.

The second biggest application of tungsten is in the manufacture of high-speed tool steel. At one time, tungsten tool steel was predominant. Today, molybdenum tool steel is more popular; however, most molybdenum grades contain some amount of tungsten, albeit at a lower percent level than in tungsten grades.

One of the faster-growing uses of tungsten is in high temperature alloys, usually of a cobalt base. Many of these alloys are used in aircraft gas turbines as well as stationary turbines for power generation, and contain as much as 15% tungsten.

Tungsten metal and alloys include wire for incandescent lamp filaments and for heating elements for fluorescent lamps and vacuum tubes. Tungsten rods are used as electrodes for inert gas welding and electric discharge machining. Tungsten, infiltrated with copper or silver, is used for electrical contacts.

The chemical uses of tungsten include catalysts for petroleum refining, organic dyes, toners or lakes, phosphors, laboratory reagents and corrosion inhibitors.

### Supply/Demand

The long-term demand for tungsten is expected to grow at an annual rate of about 5 to 6 percent. To satisfy this projected world demand, mine production must double during the next fifteen years.

The People's Republic of China is reported to have more than half of the world's estimated reserves of tungsten. The largest above-ground reserves of tungsten in the non-socialist world is in the U.S. stockpile. At year-end 1973, this stockpile contained 126.7 million pounds of tungsten, of which only 4.2 million pounds are required for stockpile objective. GSA started a monthly disposal program of about 500,000 pounds per month in September, 1973, with a provision to increase or decrease the quantity offered, depending on market conditions.

Canada ranks among the top six tungsten-producing countries in the non-socialist world, and Canada Tungsten Mining Corporation is one of the four biggest tungsten miners in the non-socialist world.

### ASSETS

	<u>1973</u>	<u>1972</u>
<b>CURRENT ASSETS:</b>		
Cash .....	\$ 5,593	\$ 67,004
Short-term notes .....	1,381,909	1,447,546
Accounts receivable .....	2,741,298	1,017,738
Income taxes recoverable .....	118,602	142,319
Inventory of concentrates — valued at the lower of cost or net realizable value .....	678,425	1,858,308
Inventory of ore in stockpile — at cost .....	130,800	559,875
Total current assets .....	<u>5,056,627</u>	<u>5,092,790</u>
<b>FIXED ASSETS:</b>		
Buildings, plant and equipment — at cost .....	7,800,921	6,892,542
Less accumulated depreciation (Note 1) .....	5,716,875	4,782,570
	<u>2,084,046</u>	<u>2,109,972</u>
Mining property — at cost .....	125,000	125,000
Net fixed assets .....	<u>2,209,046</u>	<u>2,234,972</u>
<b>OTHER ASSETS:</b>		
Inventory of supplies — at cost .....	490,924	414,487
Development and pre-production expenses — at cost, less amounts written off (Note 1) .....	2,706,450	1,337,264
Total other assets .....	<u>3,197,374</u>	<u>1,751,751</u>
<b>TOTAL</b> .....	<u><u>\$10,463,047</u></u>	<u><u>\$9,079,513</u></u>

The accompanying notes are an integral part of the financial statements.



December 31, 1973

(comparison)

## LIABILITIES AND SHAREHOLDERS' EQUITY

	<u>1973</u>	<u>1972</u>
CURRENT LIABILITIES:		
Accounts payable and accrued charges .....	\$ 872,856	\$ 386,832
DEFERRED INCOME TAXES (Note 2) .....	<u>737,000</u>	<u>397,000</u>
SHAREHOLDERS' EQUITY:		
Capital stock:		
Authorized:		
5,000,000 shares of a par value of \$1 each		
Issued and fully paid:		
4,990,000 shares .....	4,990,000	4,990,000
Less discount .....	<u>1,372,851</u>	<u>1,372,851</u>
	3,617,149	3,617,149
Retained earnings .....	5,236,042	4,678,532
Total shareholders' equity .....	<u>8,853,191</u>	<u>8,295,681</u>
Approved by the Board:		
FRED E. HALL, Director.		
J. B. REDPATH, Director.		
TOTAL .....	<u><u>\$10,463,047</u></u>	<u><u>\$9,079,513</u></u>

## AUDITORS' REPORT

To the Shareholders of  
Canada Tungsten Mining Corporation Limited:

We have examined the balance sheet of Canada Tungsten Mining Corporation Limited as at December 31, 1973 and the statements of income and retained earnings and source and application of funds for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion these financial statements present fairly the financial position of the company as at December 31, 1973 and the results of its operations and the source and application of its funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

February 28, 1974.  
Toronto, Ontario.

DELOITTE, HASKINS & SELLS,  
Chartered Accountants.

**CANADA**  
TUNGSTEN  
**MINING CORPORATION LIMITED**

**STATEMENT OF INCOME AND RETAINED EARNINGS**

**For the Year Ended December 31, 1973**

(with 1972 figures for comparison)

	<u>1973</u>	<u>1972</u>
INCOME FROM OPERATIONS BEFORE THE UNDERNOTED (Note 3) .....	\$2,517,224	\$1,351,452
INTEREST ON SHORT-TERM NOTES .....	97,949	116,963
	<u>2,615,173</u>	<u>1,468,415</u>
OTHER COSTS AND EXPENSES:		
Depreciation (Note 1) .....	934,305	889,879
Amortization of development and pre-production expenses (Note 1) .....	422,948	317,611
Exploration expenses (Note 1) .....	133,423	417,689
N.W.T. mining royalty .....	6,800	4,044
	<u>1,497,476</u>	<u>1,629,223</u>
INCOME (LOSS) BEFORE INCOME TAXES AND EXTRAORDINARY ITEM .....	1,117,697	(160,808)
PROVISION FOR (RECOVERY OF) INCOME TAXES:		
Current .....	(7,000)	36,000
Deferred .....	415,000	(75,000)
	<u>408,000</u>	<u>(39,000)</u>
INCOME (LOSS) BEFORE EXTRAORDINARY ITEM .....	<u>709,697</u>	<u>(121,808)</u>
WRITE OFF LOW-GRADE ORE INVENTORY IN STOCKPILE, NET OF INCOME TAXES THEREON OF \$75,000 (Note 4) ....	152,187	—
NET INCOME (LOSS) FOR THE YEAR .....	<u>557,510</u>	<u>(121,808)</u>
RETAINED EARNINGS AT BEGINNING OF THE YEAR .....	4,678,532	5,299,340
	<u>5,236,042</u>	<u>5,177,532</u>
DIVIDENDS PAID .....	—	499,000
RETAINED EARNINGS AT END OF THE YEAR .....	<u>\$5,236,042</u>	<u>\$4,678,532</u>
INCOME (LOSS) PER SHARE BEFORE EXTRAORDINARY ITEM	<u>14.2¢</u>	<u>(2.4)¢</u>
NET INCOME (LOSS) PER SHARE AFTER EXTRAORDINARY ITEM	<u>11.2¢</u>	<u>(2.4)¢</u>

The accompanying notes are an integral part of the financial statements.



**CANADA**  
TUNGSTEN  
**MINING CORPORATION LIMITED**

**STATEMENT OF SOURCE AND APPLICATION OF FUNDS**

**For the Year Ended December 31, 1973**

(with 1972 figures for comparison)

	<u>1973</u>	<u>1972</u>
<b>FUNDS PROVIDED:</b>		
Net income (loss) for the year .....	\$ 557,510	\$ (121,808)
Items not involving funds:		
Depreciation .....	934,305	889,879
Amortization of development and pre-production expenses .....	422,948	317,611
Deferred income taxes .....	340,000	(75,000)
Supplies .....	—	5,518
Funds provided from operations .....	<u>2,254,763</u>	<u>1,016,200</u>
<b>FUNDS APPLIED:</b>		
Development and pre-production expenses (Note 1) ...	1,792,134	167,189
Additions to fixed assets .....	908,379	136,193
Dividends paid .....	—	499,000
Supplies .....	76,437	—
	<u>2,776,950</u>	<u>802,382</u>
<b>INCREASE (DECREASE) IN WORKING CAPITAL FOR THE YEAR</b>	<b>(522,187)</b>	<b>213,818</b>
<b>WORKING CAPITAL AT BEGINNING OF THE YEAR .....</b>	<b>4,705,958</b>	<b>4,492,140</b>
<b>WORKING CAPITAL AT END OF YEAR .....</b>	<b><u>\$4,183,771</u></b>	<b><u>\$4,705,958</u></b>

The accompanying notes are an integral part of the financial statements.

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 1973**

**1. Accounting Practices**

**(a) Fixed Assets**

It is the company's practice to provide for depreciation of buildings, plant and equipment at 15% per annum on a straight-line basis. Estimated 1974 capital expenditures approximate \$1,500,000 of which \$700,000 had been contractually committed as of December 31, 1973.

**(b) Development and Pre-production Expenses**

The development and pre-production expenses related to the mine are being amortized over the estimated life of the original ore body on the basis of units sold. All development and pre-production costs related to the new underground ore body, incurred subsequent to the decision to proceed with underground development, have been deferred. Commencing in 1974, when underground ore is available, the aggregate development and pre-production costs will be amortized over the estimated life of the new ore body on the basis of units sold. Estimated cost to complete the underground development programme in 1974 approximates \$1,000,000.

Costs related to the exploration for new mineral claims and ore bodies are expensed as incurred.

**(c) Conversion of U.S. Dollars**

At December 31, 1973, accounts receivable due in U.S. dollars have been converted to Canadian dollars at par.

**2. Deferred Income Taxes**

Deferred income taxes result primarily from claiming the development and pre-production expenses as deductions from taxable income in the year expended whereas these expenses are being amortized over the estimated life of the mine for accounting purposes.

**3. Sales Disclosure**

Pursuant to Section 173 of The Business Corporations Act, Ontario, an order was obtained from the Ontario Securities Commission permitting the company to omit disclosure of sales in the statement of income for the year ended December 31, 1973.

**4. Inventory Write Off**

As higher grade ore from the new underground ore body will be available in early 1974, the company has decided that certain low-grade refractory ore mined from the pit ore body during 1972 would not be used to meet mill production requirements. Accordingly, the cost of the low grade ore inventory has been written off as of December 31, 1973.

**5. Remuneration of Directors and Senior Officers**

Remuneration of directors and senior officers, as defined by The Business Corporations Act, Ontario, amounted to \$146,000 for the year ended December 31, 1973 (1972 — \$141,000).



# CANADA TUNGSTEN MINING CORPORATION LIMITED

## Report of the Mine Manager

The President and Board of Directors,  
Canada Tungsten Mining Corporation Limited,  
Suite 1014, 111 Richmond Street West,  
Toronto, Ontario M5H 2G4

Dear Sirs:

The following report covers the 1973 operation of the Mine at Tungsten, N.W.T., and the Leach Plant at North Vancouver.

Continuous production of high quality scheelite concentrates was maintained throughout the year.

### CONCENTRATOR

A total of 164,900 tons of ore containing 1.22%  $WO_3$  and 0.161% Cu were processed. The total production amounted to 161,430 short ton units of  $WO_3$  and 197,861 lbs. of copper.

Overall recovery of  $WO_3$  averaged 80.20% for the year.

The concentrator operated a total of 90.09% of possible time and treated an average of 452 tons per day.

Milling of the lower-grade chert ore was discontinued in August when the higher grade skarn type ore from the open pit became available. This resulted in a more efficient milling operation.

Laboratory and production scale testing of underground ore was carried out. Some separation problems were encountered due to the presence of a talc-like material in the ore. However, this was overcome in the laboratory and production testing is continuing.

All stockpiled copper concentrates were sold during the year.

### MINING

During the open pit mining season a total of 103,670 tons of ore were mined and stockpiled with a grade averaging 1.60%  $WO_3$ . In addition, 78,000 tons of waste were removed from the pit.

This work completed the economically feasible mining operations in the open pit. Pit ore reserves amount to 177,600 tons of skarn type ore grading 1.62%  $WO_3$  and 73,600 tons grading 0.71%  $WO_3$ . This material can only be mined using underground methods.

Chert ore reserves in place amount to about 615,000 tons grading 0.81%  $WO_3$ .

Stockpile balances at December 31 amounted to 34,460 tons of skarn ore grading 1.73%  $WO_3$  for 59,507 STU and 63,907 tons of chert ore grading 1.17%  $WO_3$  for 74,528 STU.

### UNDERGROUND DEVELOPMENT

The following development work on the E zone orebody was completed:

Main Adit	3,836'
Access Ramps	2,806'
Raising	97'
Ventilation Decline	1,543'
Conveyor Tunnel	1,157'
Diamond Drilling	30,306'

Proven ore reserves at December 31 amounted to 4,242,000 tons @ 1.68%  $WO_3$  for 7,106,000 STU.

It is planned that underground production to the mill on a steady basis will commence during the latter part of February, 1974.

### GENERAL

The availability of personnel continued to be good with a normal turn-over.

Major construction items during the year were the addition of a sewage disposal plant, while an addition to the powerhouse was commenced.

During the year a full-time geologist, a mine engineer and survey crew were added to the staff.

### LEACH PLANT

The leach plant in North Vancouver operated well during the year.

Overall recovery was 96.99% with no changes in the plant operation.

I would like to express appreciation for the technological assistance received from the Amax staff and to the staff of the mine for their performance during the year.

Respectfully submitted,

J. K. KERVIN, P.Eng.,  
Mine Manager.

Tungsten, N.W.T.,  
March 4, 1974.





